

# Search Engine Optimization with A/B Testing

Abhaykumar Badchikar, Vandana Bhat



**Abstract:** *The search engine optimization, or in short- SEO, is the largest speck of digital marketing, often the hardest thing to learn. Since there are so many individual components that make the large picture of what SEO is, people assume one can never fully learn SEO. While this can be considered true, due to the constant changes in the world of digital marketing, breaking SEO down to its core elements, and understanding them all individually, will help user better grasp the overall concept. In this paper we will learn the basics of search engine optimization and page rankings and this report will explain user how to start doing SEO with Google and provide user the basic SEO framework. Search engine optimization (SEO) is a methodology of strategies, techniques and tactics used to increase the amount of visitors to a website by obtaining a high-ranking placement in the search results page of a search engine (SERP) — including Google, Bing, Yahoo and other search engines.*

**Index Terms:** *Internet, Websites, Blogs SEO, SERP, Digital Marketing*

## I. INTRODUCTION

The SEO's are responsible to optimize WebPages and its contents based on keywords that points to the client's business, primarily aimed at improving the overall presence on the Internet, mainly on the Search Engine Results Pages (SERP). This department comprises of Search Engine Optimizers and SEO copywriters. Search Engine Optimizers perform various optimization techniques for gaining better SERP rankings. The optimization techniques can be classified into two broad categories:

- On-Page Optimization
- Off-Page Optimization

On-page Optimization is the fundamental step in the Search Engine Optimization. It includes optimization techniques that are implemented within the website. On-page Search engine optimisation is very important for better SERP rankings as well as for a successful internet marketing campaign. On-page optimization includes optimization of Titles, Meta Descriptions, URL, Image, web content, page load speed and others.

Off-page Optimization technique is implemented once the On-Page SEO is done for the website. Off-page optimization includes promotional methods that are implemented to compliment the On-page strategy for improved SERP rankings. Some of the basic Off-page Optimization methods include: Link Building, Social Media, Social bookmarking, Email outreach and others [1].

SEO Copywriters are basically content writers who create optimized and well crafted SEO contents as instructed by Search Engine Optimizers. These contents are well formatted, easy to read & understand, as well as search engine friendly. A/B testing: The number of users on site leads to the chances you need to extend your business by getting new clients and connections by taking into account existing ones. What's more, it is your transformation channel that chooses whether your site gets great traffic and the off chance that it changes over more guests. Organizations need guests to make a move (additionally called a transformation) on their site and the rate which can drive this is called its "change rate". The more streamlined your channel, higher is the guests' opportunity to change over. One approach to streamline your site's pipe is A/B testing. A/B testing in the meantime and looking at which variation drives more changes. Ordinarily, the one that gives higher changes is the major variation applying which can enable you to enhance your site for better outcomes additionally now and then alluded to as split testing is the act of demonstrating variations of a similar website page to various sections of guests.

## II. PROCEDURE FOR SEO ANALYSIS

Search engine optimization SEO analysis uncovers different aspects of optimization that can be used to improve website's SERP rank on popular search engines such as Google, Bing, Yahoo, etc [1][2]. SEO analysis was core part of author's intern activities. Under SEO analysis, author was involved in the following activities:

### A. Website analysis

Website analysis included analysis of

- Pages Title
- Meta Description
- Code-to-Text ratio
- Page load speed
- Sitemap
- Duplicate content
- Backlink analysis
- follow and no-follow links

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### B. Competitor analysis

Competitor analysis is the analysis of competitors in the same niche. Niche is basically a topic that can be targeted. For example, Search Engine Optimization can be a particular niche.

Websites targeting the same keyword are competitors to each other. Competitors can be SEO competitor (websites fighting for top SERP ranking) or Business competitors (competitors providing similar services or products). An example of an SEO competitor can be a blog about **Search Engine Optimization**.

### C. Keyword research

After the SEO analysis was completed, the authors were involved in Keyword Research which is one of the crucial activities in Search Engine Optimization. Keyword Research involves identifying sets of keywords that are used in optimization. From the bucket list of keywords provided, author performed keyword research using a popular tool called Google Adwords Keyword Planner. Keyword research involves a great deal of time and effort. And, a lot has to be focused on the competition (low, medium or high) and search volume (average monthly searches). Since author was involved in a startup project, and the market competition for the niche was really high, initially, the keyword research focused on low competition keywords with more than 100 average searches per month.

### D. Content research

Author performed content research based on keywords that were to be targeted and optimized. It included finding relevant contents that received the most engagement (likes and shares) on social media. Buzzsumo was used for content research particularly for finding the most engaging content over the past one year or so.

### E. Content creation & optimization

There is a popular saying: Content is King. Search Engines especially Google places a lot of weight age on contents. Not just random contents but to those contents that provide value to their readers. Author created few contents that included keywords (researched earlier) in strategic places such as the URL, Title, Meta Description, and Headings. **Headline Analyzer by Co-schedule** was used to create catchy and better headlines

### F. Title and Meta description optimization

Using a popular WordPress Plug-in named Yoast SEO, author optimized the title and Meta descriptions for every pages. As per standard, the length of the title and Meta description were kept under 70 and 150 characters respectively. Page title and Meta descriptions have strategic importance. Both of them appear in the SERPs. Optimized Page title is one of the many ranking factors in Google. While Meta descriptions aren't a direct ranking factor, well written Meta descriptions can dramatically increase the click through rate of websites.

### G. Image optimization

As part of the on-page optimization, author performed image optimization. Image Optimization included the following:

- Every image file was provided with an SEO friendly name.
- Each image was re-sized prior to the upload.
- Optimized alternative text was written.
- Descriptive captions were provided to the images as far as practicable.

The alternative text is a crucial part of 'Image Optimization'. It tells search engines what the image is about. Moreover, alternative text also comes handy if and when the image gets corrupted. And, the text in the alternative text is used by programs such as screen readers for visually impaired readers.

### H. Monitoring & reporting

Author performed SEO monitoring using **Google Analytics** and **Google Search Console**. Monitoring basically focused on four major aspects:

- **Audience** (the visitors)
- **Acquisition** (how did the visitors come),
- **Behavior** (what did the visitors do)
- **Search Analytics** (Click through Rate, Average position in the SERPs).

For Social Media Monitoring, different tools were used. Sprout Social, Mention, Twitter Analytics to name a few. Weekly report was submitted to the Intern Supervisor.

## III. A/B TESTING & ITS TECHNIQUES

The quantity of guests on your site rises to the quantity of chances you need to extend your business by getting new clients and construct connections by taking into account existing ones. What's more, it is your transformation channel that chooses whether your site gets great traffic and on the off chance that it changes over more guests. Organizations need guests to make a move (additionally called a transformation) on their site and the rate at which a site can drive this is called its "change rate". The more streamlined your channel, higher is the guests' opportunity to change over.

One approach to streamline your site's pipe is A/B testing. A/B testing in the meantime and looking at which variation drives more changes. Ordinarily, the one that gives higher changes is the triumphant variation, applying which can enable you to enhance your site for better outcomes additionally now and then alluded to as split testing) is the act of demonstrating 2 variations of a similar website page to various sections of guests.

### A. Uses of A/B testing

A business might be slow down due to some reasons for example an e-commerce company might be struggling with the full loaded store and low cart rate on the other hand the news and media company might struggling TRP rates and web series media gets a lower TRP due to lack of engagement between the user and the media, Or the product at the e commerce store. These internal conversion methods are driven by some common problems like dropouts in the conversion pipe, redirecting page on the payment page, etc. Let us see why one should do A/B testing to deal with all such kind of problems.

#### i. Elucidate the basic agenda of the visitor:

The visitor to your site may come with particular objective in their mind, it might be to search a product and its price or the kind of service they needed or simply to surf. Whatever might be the user objectives are, they might face the problem at one point of time, if this happens they end up with the bad user experience on your website. This leads to the disharmony between you site and the visitor affects the conversion rates. So it's always better to use the analytics tools. One such analytics tools we have used is Google's Analytics tool, where we can have a better survey and visitor behavior clearly. Once you get the clear behavior of the visitor you can solve the basic objectives of the visitor. And this can be done to the websites of e-commerce, blogs, educational sites, government sites etc.

#### ii. Gain more returns on investment by existing traffic:

All most marketers had become the conscious of the fact that the organic traffic always come from Google not by any paid searches or ads. Thus by A/B testing we can do lot more things to develop the huge traffic with the good conversion rate and lets you to save by spending on inorganic paid searches to attract the new visitors. By A/B testing when you change a considerable content it will return high on your investment also by in conversions rate.

#### iii. Reduce bounce rate:

The continuous monitoring of the bounce rate should be done for better website performance. If a website has a high bounce rate, it might have too many options where the user ends up in confusion of mismatch of his expectation. There are lot more websites which serves with a different agenda to gather new audiences regularly and sever the existing one to the best for this reason there is no any particular technique to optimize the bounce rate. But by A/B testing one can check the other competitor websites and their multiple variations accordingly.

#### iv. Do Risk-free remodeling:

The website's may not to be redesigned. If you redesign your website completely, it might affect your previous conversion rate. So by minimal modification in the content or design can bring the website a huge difference. By A/B testing one can reach the beneficial resources & high user interaction by remodeling it minimal. Its true benefit can be observed when the purchase page of the site gets the true organic results. Testing and making minimal changes in the website can make the huge differences

### v. Profitably redesign your website:

For redesigning the website we consider the minor call to action text in order to refurbish the website needed. Implementation of new version of website is done by data-driven A/B testing. Once the new version is hosted, check other pages to get more traffic to updated pages.

### B. Process of A/B testing

A/B testing serves a systematic procedure to find which pages are working and which does not serve in any given marketing environment. As the traffic investment becomes more difficult we need to get traffic from inorganic searches, such as; paid ads online campaigning etc. Due to less responsive of the web pages the users may end up in home page itself. Hence, prime importance is given to the webpage to make more interactive, fastest and more efficient. A/B testing ensures to get most traffic from existing traffic.

Structured A/B testing procedure or a program makes marketing strategy more commercial by observing on problematic areas that need changes. Nowadays, A/B testing is not much considered to more structured and constant activities which should be done through CRO process. This includes various steps:

#### Step 1: Research

Once you decide to test website by A/B testing methods, we need to follow a thorough research on current operation of the website. We need to accumulate data regarding the behavior of users like count of the users, pages that are hit most, back links of the particular page etc. The behavior of a user can be checked by analyzing tool called Google Analytics. For example, when we analyze the site we can figure how traffic comes from the international sources as well as domestic sources & requirement of the both kind of visitors and we may go deeper in to the quality of visitor's traffic. Google analytics tool is free tool that is providing the service in the field of quantitative and qualitative user behavioral analysis. The primary aim is to have easy understanding of how the user works on your site in real time and his behavior. It also makes us understand the unknown source traffic, it also uncover the insights like why the user is not accessible to your location and which pages irresponsive and not hit by the visitor and also why the visitor did not fill the personal information form etc.

#### Step 2: Estimation and Hypothesis formulation

The best way to accomplish every bit of data is to analyze and make good observations and then tracing the website and the visitor behavior to formulate data. Once the hypothesis is ready, test other factors like how confident you are in achieving the macro goals.

#### Step 3: Variation Creation

In the next step we should create a variation related on the hypothesis made and A/B test is applied to existing version. The variation which we get is another version of existing version. We can add different variations to check which one serves the best. For example, In Google maps, remote places are not conveyed, hence we can add the location which is near to the given remote location.

#### Step 4: Testing

There are four testing methods like A/B Testing, Multivariate Testing, Split URL Testing, and Multipage Testing.

And we use A/B testing method in testing our website.

### A/B Testing on WebPages

It is necessary that content should reach the visitor of the website and should have maximum optimization. Thus we can analyze user behavior and conversion rate through Google analytics.

#### 1. Copy

##### Headlines and sub headlines:

Headline is the prominent thing that visitors spot on the page. The headline catches the eyes of visitor. The impression of the headline must be catchy till the last page of the website. And hence it is more important to be careful about the content of the website and the images. The heading of the website should clearly convey the cause of the product or service.

**Body:** The body of the website must define the state where visitor can derive. In order to get particular information and what they can opt from the website. It must replicate the headline in brief manner. A well-structured body and a headline can accelerate new traffic. Two parameters to be considered while writing the body of the website:

- **Writing style:** By keeping target audience into mind we need to use right key phrase which helps to improve usability. It should also highlight stylistic elements which can attract other audience.
- **Formatting:** Usage of appropriate headlines and sub-headlines makes easier for the visitors. Divide the copy into small fragments and easy paragraphs using bullet points or lists.

#### 2. Design and Layout:

All most all businesses are essential, but sometimes the priority for product should be given to display on the website, this crucial thing can be solved by A/B testing. So design and layout play crucial role in making a successful web business. Therefore, it is highly important that your product page is at its most modified in terms of design and layout.

The product page should not be complicated so that it must not confuse the user without getting cluttered:

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- **Provide clear information:** Find the best possible ways to sell your products. It must very creative with necessary clear context and complete product description. So that buyers should not in dilemma with the unorganized copy. Clear copies should be written with noticeable color options and size charts etc.
- **Highlight customer reviews:** Both good and bad reviews of the customer should be mentioned as it helps the other customers.
- **Write simple content:** Content should be simple and fun to read, Complications made in content will confuse the potential buyer to buy the product. Keep it simple and fun to read.
- **Create sense of urgency:** By adding tags like 'only 2 left in stock', countdowns like 'offer ends in 2hours 15 minutes', or highlight exclusive discounts and festive offers, etc it makes the buyer to buy the product immediately.

#### 3. Navigation:

Website's navigation is the other element that can be optimized by A/B testing, It is the most important when it matters to user experience. The sitemap of the website is prior thing before developing the website; one should have

the idea about the web pages that they are going to build. The navigation of the website starts from homepage. Home page is also known as landing page. It is the parent page for the other pages of the website; it should be most responsive page of the website and should have redirects.

##### Some useful techniques to optimize the navigation page:

By placing the navigation bar in standard places like vertical down and horizontal at the top, will make the match of the visitors. And it makes the user to ease the website. By creating easy navigation and by keeping the structure simple will not increase the conversion rate. The customer experience or feedback form will create a delightful site. And make visitors come back to website again and again.

##### Forms:

Forms are the mediums through which visitors get in touch with you. They become most vital if they are in to your purchase track. As there is no similar websites, it makes different from other competing site. By adding forms in to the site, one can get the information like phone number email id etc, so that we can contact them for offers or seasonal offers. And make website most busy.

##### CTA (Call to Action):

The real action takes place in call to action part. It is section where we can track the user cut downs in purchases, Will they fill out the sign-up form or not? And more such actions that will have a direct bearing on your conversion rate [6]. One can A/B test different copies, placement, colors & sizes, etc for your Call To Action till you find the successful variation - and then test the successful version further to optimize it even more

##### Social proof:

Social proof is the form of recommendations and reviews from masters of the particular field, particularly from celebrities and customers. It can be testimonials or media mentions badges and awards so on. This validates might be subject to copyrights. A/B testing can help you in testing by placing the social proofs in different places.

Google search console & Google analytics

##### Google Analytics

Google Analytics is a freemium web analytics service offered by Google that tracks and reports website traffic. Through Google Analytics, test for various SEO related aspects can be performed. For instance, popularity of a website can be determined by carefully examining the metric called 'Bounce Rate'. Bounce Rate basically describes the percentage of people who leave the website from the entrance page without interacting with any further WebPages. Generally, lower bounce rates are preferred. Similarly, Google Analytics data can be used to test the effectiveness of different campaigns – paid campaigns (such as Adwords advertisement) and unpaid Campaigns (such as links from SERP pages) [8].

##### Google Search Console

Google Search Console (previously Google Webmaster Tool) is a free service by Google for Webmasters [7][8]. Through Google Search Console, webmasters can perform a lot of different things. Some of them are as under:



- Check search analytics (such as search queries, clicks, Impressions)
- See backlinks to the website
- Check index status, crawl errors, crawl stats, etc
- Submit and Test a sitemap.
- Write and test a robots.txt file.

Google Analytics and Google Search Console’s monitoring basically focused on four major aspects:

- **Audience** (the visitors)
- **Acquisition** (how did the visitors come),
- **Behavior** (what did the visitors do)
- **Search Analytics** (Click through Rate, Average position in the SERPs).

#### IV. RESULTS

By following the proper above mentioned procedure we found that our client website was lagging behind as compared to our competitor website so we followed the procedures like, change in the content and we added some new key words and Meta descriptions

#### V. CONCLUSION

SEO is not something user can learn within a week or even a month. It may take user months of research and hard work to grasp the overall concept. But if user want—user will get there. All of these components we talked about make the search engine optimization what it is, so logically with their internal changes come the changes in SEO. That is what makes the search engine optimization hard to learn—the inconsistency of its core elements. Keywords, algorithms, and structures are changing on a daily basis, forcing SEO to be constantly under construction. However, if user do decide to take the time to fully focus on SEO user will soon be able to see how beneficial it is.

Nothing user do online can be good without SEO. It is the center of digital marketing. Without SEO, nothing would have made sense.

#### REFERENCE

1. Joyce Yoseph Lemos & Abhijit R. Joshi “Search Engine Optimization to Enhance User Interaction” 2017 International conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) I-SMAC 2017 398-402
2. Aanchal Kakkar, Rana Majumdar & Arvind Kumar “Search Engine Optimization: A Game of Page Ranking” 2015 2nd International Conference on Computing for Sustainable Global Development (INDIA Com) 206-210
3. HO, LI-HSING, LU, MENG-HUANG, HUANG, JUI-CHEN & HO, HUI-YI. “The Application of Search Engine Optimization for Internet Marketing: An Example of the Motel Websites” 2010 IEEE Conference on Information from the Academia Sinica computing center annual report 2005 and Jerri 2008 Volume-1 380-383
4. Huanwei Wu “Search Engine Optimization of E-Commerce Websites”
5. HubSpot, “All the Marketing Statistics User Need,” 2014; <https://www.hubspot.com/products/marketing/seo>
6. “Bing Webmaster Guidelines,” [www.bing.com/webmaster/help/webmaster-guidelines-30fba23a](http://www.bing.com/webmaster/help/webmaster-guidelines-30fba23a)
7. Google, “Webmaster Guidelines,” <https://support.google.com/webmasters/answer/35769?hl=en>.
8. Google, “Analytics Guidelines” [https://static.googleusercontent.com/media/www.google.com/en//grant/s/education/Google\\_Analytics\\_Training.pdf](https://static.googleusercontent.com/media/www.google.com/en//grant/s/education/Google_Analytics_Training.pdf)
9. Word press, “Word press developer’s guidelines” <https://developer.wordpress.org/plugins/wordpress-org/detailed-plugin-guidelines/>

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